

ABSTRACT

ENHANCED MAGNETOCALORIC EFFECT MATERIAL

A magnetocaloric effect heterostructure having a core layer of a giant magnetocaloric material and an elastically stiff material layer coated on at least one surface of the magnetocaloric material layer. The elastically stiff material layer restricts volume changes of the core layer during application of a magnetic field to the heterostructure. A magnetocaloric effect composite powder including a plurality of core particles of a giant magnetocaloric material. Each of the core particles is encapsulated within a coating of elastically stiff material that restricts volume changes of the core particles during application of a magnetic field thereto. A method for enhancing the magnetocaloric effect within a giant magnetocaloric material including the step of coating a surface of the magnetocaloric material with an elastically stiff material. The elastically stiff material restricts volume changes of the magnetocaloric material during application of a magnetic field thereto.

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